

Attachment A: Flow Frequency Memorandum

MEMORANDUM

**DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office
4949-A Cox Road Glen Allen, Virginia 23060**

SUBJECT: Flow Frequency Determination / 303(d) status
Northumberland Middle/High School WWTP – VA0092061

TO: Janine Howard

FROM: Jennifer Palmore, P.G.

DATE: August 31, 2011

COPIES: Modeling File

The Northumberland Middle/High School Wastewater Treatment Plant discharges to an unnamed tributary of Crabbe Mill Stream. The outfall is located at rivermile 7-XDW000.24. Flow frequencies have been requested at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The USGS Heathsville Quadrangle shows the receiving stream to be an intermittent stream. The flow frequencies for intermittent streams are listed below:

Outfall 001:

| | |
|-----------------|---------------------------|
| 1Q30 = 0.00 cfs | High Flow 1Q10 = 0.0 cfs |
| 1Q10 = 0.0 cfs | High Flow 7Q10 = 0.0 cfs |
| 7Q10 = 0.0 cfs | High Flow 30Q10 = 0.0 cfs |
| 30Q10 = 0.0 cfs | HM = 0.0 cfs |
| 30Q5 = 0.0 cfs | Annual Average = 0.0 cfs |

The receiving stream was not assessed for any Designated Uses during the 2010 305(b)/303(d) Water Quality Assessment (Category 3A).

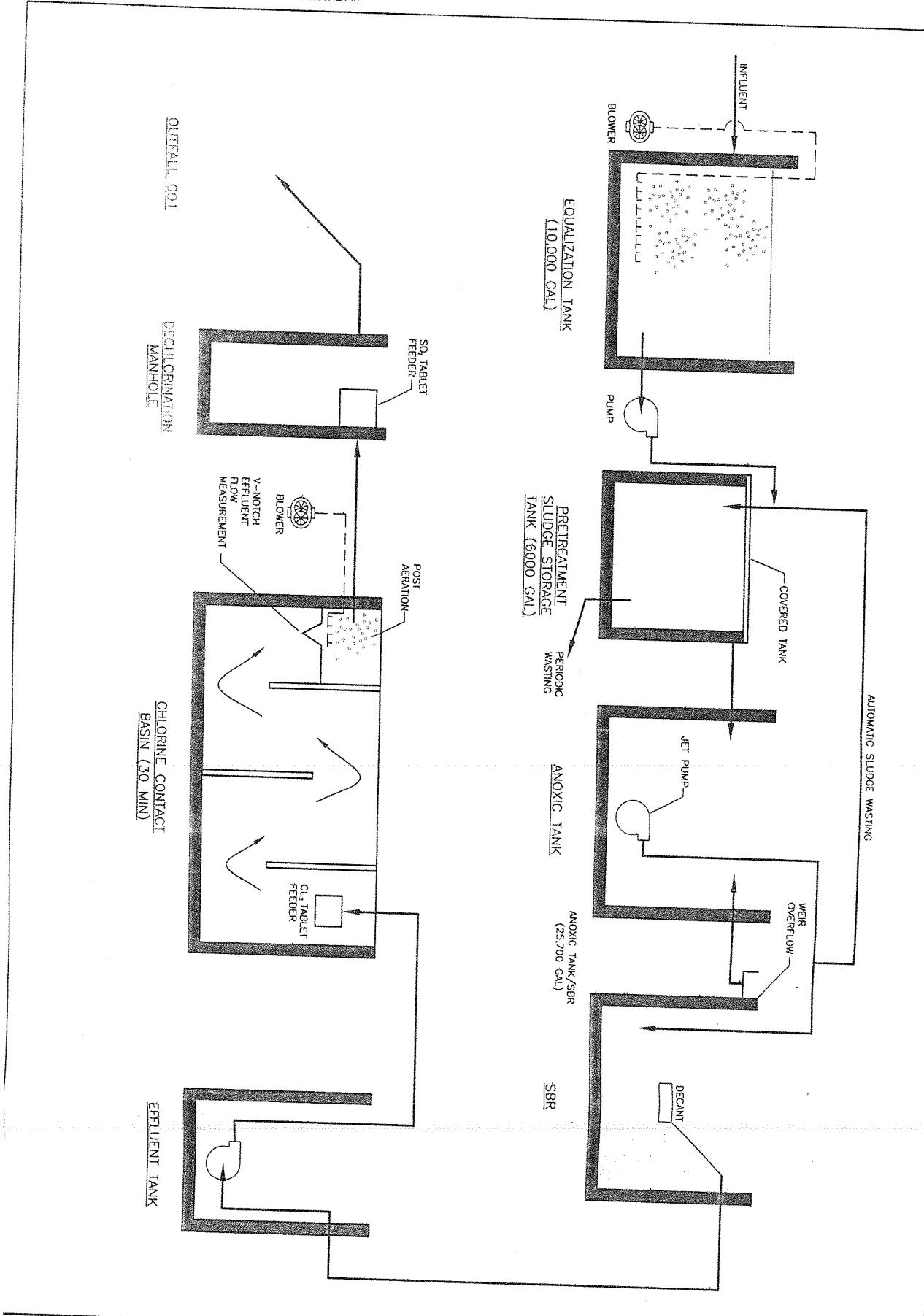
A shellfish bacteria TMDL has been completed for the Great Wicomico River and includes the entire watershed. The facility was not addressed in the TMDL because the portion of the Great Wicomico River to which the facility drains is administratively condemned and the Shellfish Use is considered to be removed.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010. Northumberland MS/HS was included in the aggregated total nitrogen, total phosphorus, and total suspended solids wasteload allocations for non-significant wastewater dischargers in the Virginia portion of the mesohaline Chesapeake Bay segment 5 estuary (CB5MH_VA).

Because of its intermittent nature, effluent data should be used to characterize the receiving stream. It is considered a Tier 1 water.

If you have any questions about this analysis or need any additional information, please let me know.

Attachment B: Plant Flow Diagram



TIMMONS GROUP

NORTHUMBERLAND MIDDLE/HIGH SCHOOL WWTP

NORTHUMBERLAND COUNTY, VIRGINIA

PROCESS FLOW SCHEMATIC

| YOUR VISION ACHIEVED THROUGH OURS | | THIS DRAWING PREPARED AT THE CORPORATE OFFICE | | | | 1001 Builders Parkway, Suite 300 Richmond, VA 23225 TEL: 824.322.8550 FAX: 824.380.1010 www.timmons.com | | | |
|-----------------------------------|----------------------|---|----------------------|-------------|----------------------|--|----------------------|------------|----------------------|
| | | | | | | | | | |
| | | Site Development | | Residential | | Infrastructure | | Technology | |
| DATE | REVISION DESCRIPTION | DATE | REVISION DESCRIPTION | DATE | REVISION DESCRIPTION | DATE | REVISION DESCRIPTION | DATE | REVISION DESCRIPTION |
| 9/2006 | | REMARKS | | S. SCOTT | | 1.0NC | | 1.0NC | |
| | | REVISION BY | | 1.0NC | | 1.0NC | | 1.0NC | |
| | | INITIALS | | 1.0NC | | 1.0NC | | 1.0NC | |
| | | | | | | | | | |

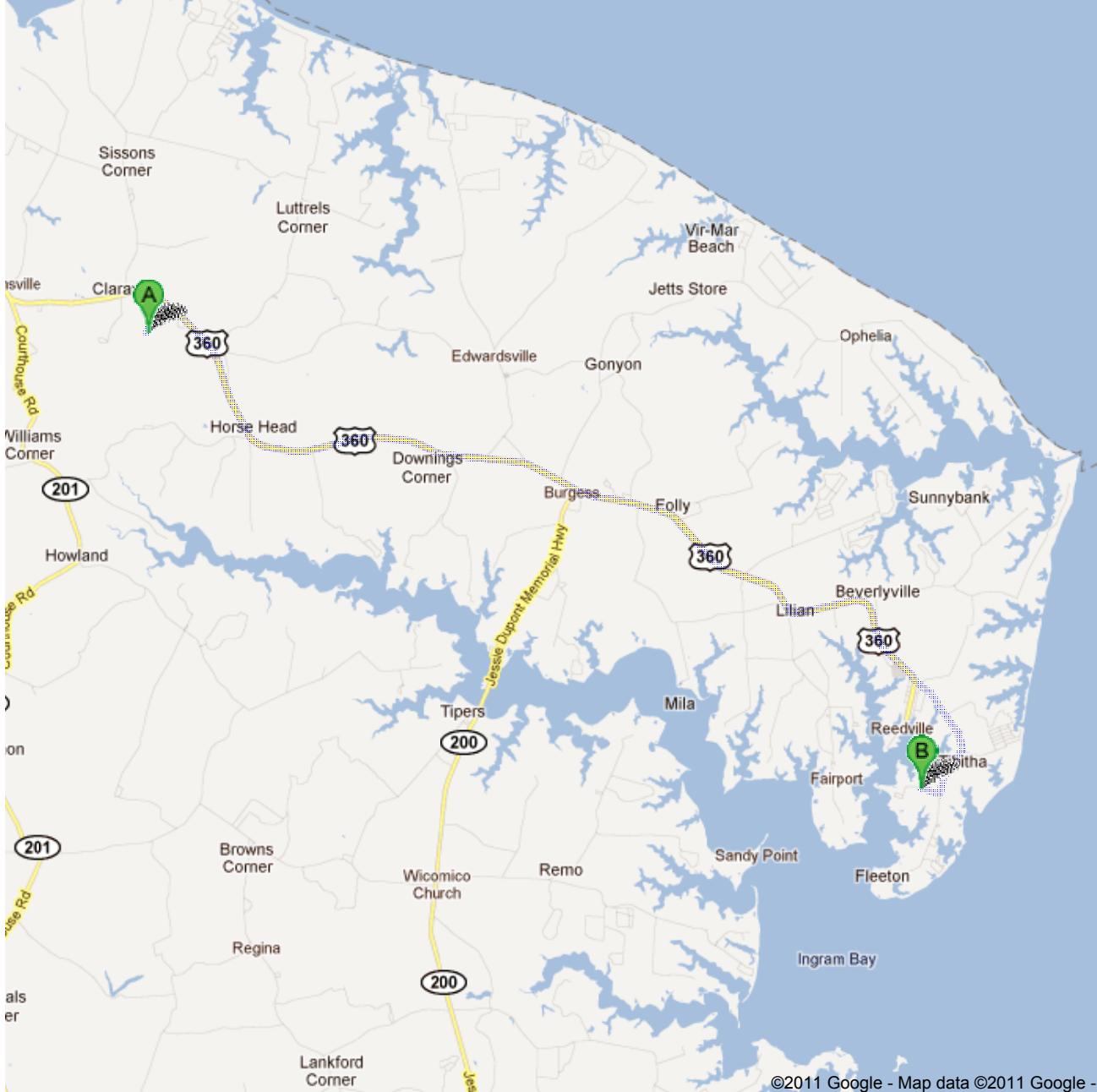
200#
200#* All plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for
any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

Attachment C: Sludge Haul Route



Directions to Menhaden Rd, 5, VA 22539
13.5 mi – about 20 mins

Save trees. Go green!
Download Google Maps on your
phone at google.com/gmm



 A Academic Ln, Heathsville, VA

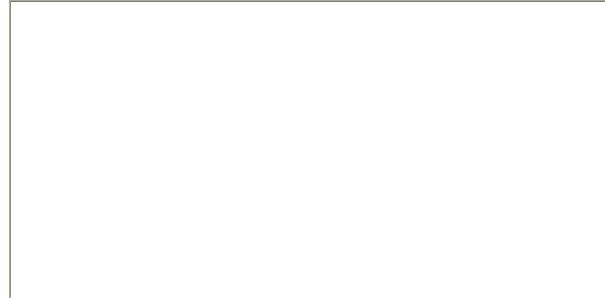
-
- | | | |
|---|---|-----------------------------|
| 1. | Head northeast on Academic Ln/State Route 698 toward US-360 E/Northumberland Hwy | go 0.4 mi total 0.4 mi |
| | About 1 min | |
|  | 2. Turn right onto US-360 E/Northumberland Hwy | go 11.3 mi total 11.7 mi |
| | About 13 mins | |
|  | 3. Slight left onto Fleeton Rd/State Route 657 | go 1.6 mi total 13.3 mi |
| | About 5 mins | |
|  | 4. Turn right onto Menhaden Rd/State Route 659 | go 0.2 mi total 13.5 mi |
| | | |

 B Menhaden Rd, 5, VA 22539

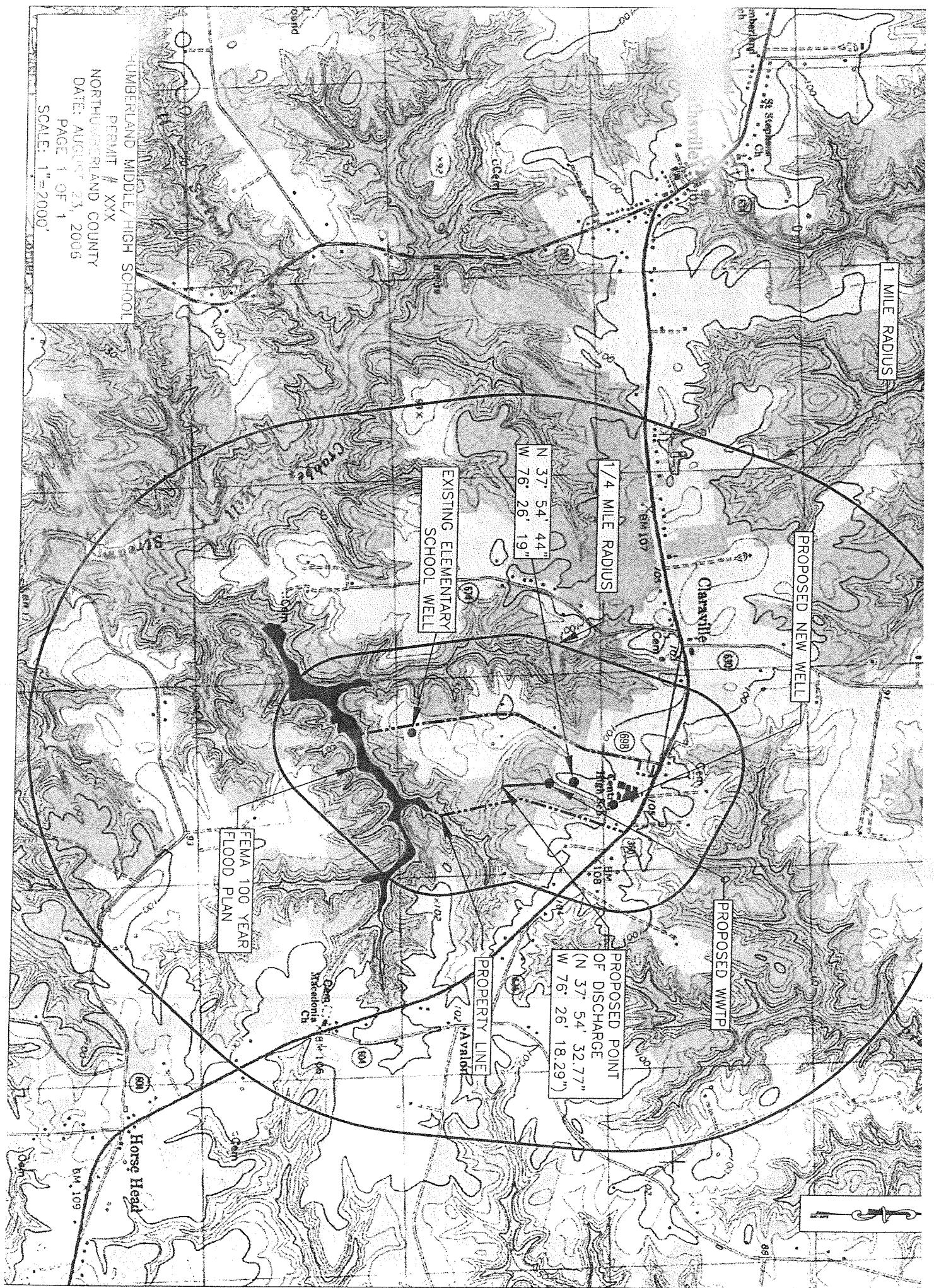
These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

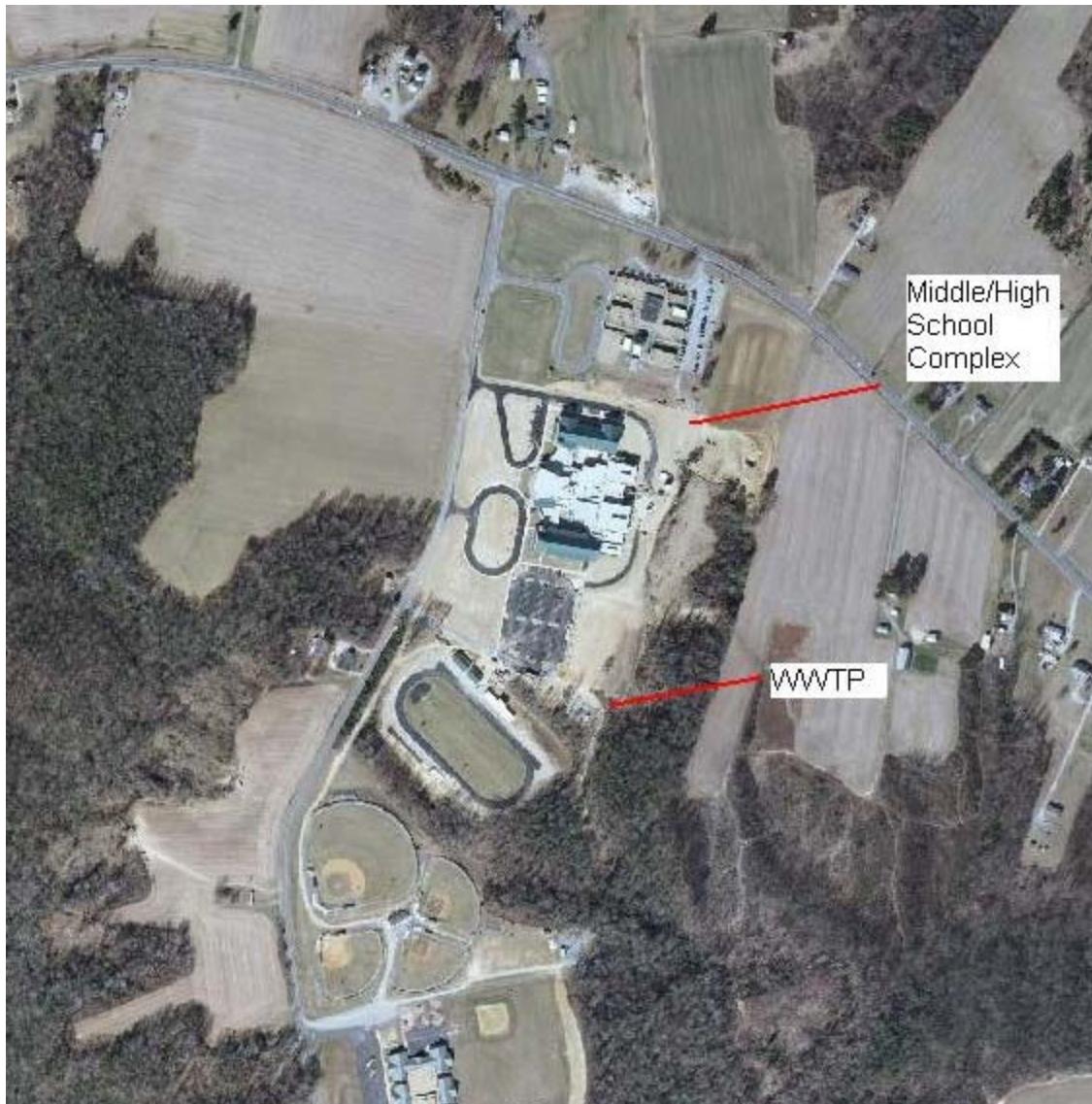
Map data ©2011 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.



Attachment D: Topographic Map- Heathsville Quadrangle (145B)





Aerial image of wastewater treatment plant (Source: Google)

Attachment E: Site Inspection Report

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Regional Office*

4949-A Cox Rd Glen Allen, VA 23060

(804) 527-5020

SUBJECT: Site Visit- VA0092061- Northumberland Middle/High School WWTP Site Visit

TO: File

FROM: Janine Howard, PRO Permit Writer

DATE: 3 October 2011

On October 3, 2011 at 11am I met with Joe Gordon and Clifton Bowles, both plant operators, who reports to Lee Bowles, the chief operator of the Northumberland Middle/High School wastewater treatment plant. The Northumberland Middle/High School wastewater treatment plant is located at 201 Academic Lane (State Route 698) in Heathsville, VA. The wastewater treatment plant treats domestic wastewater from the Middle and High School complex. During the academic year, approximately 1,000 students and staff utilize the building. Northumberland Elementary school is located just beyond the Middle/High school on Academic Lane but has a septic system to treat its wastewater.

I toured the facility beginning with the headworks. The influent flows via gravity to the headworks of the plant. A grinder, referred to as the "muffin monster" grinds larger particles as they enter the plant and runs continuously. A basket attached to the bottom of the grinder catches any pieces of debris that are still too large to enter the plant and is particularly important if the flow is diverted around the grinder for any reason. The basket is periodically emptied by the operators (Figure 1). The plant consists of an equalization tank, a sludge storage tank, an anoxic tank, a sequencing batch reactor (SBR) compartment, an effluent tank, a chlorine contact tank, a post-aeration chamber, and a dechlorination manhole (Figure 2). The influent equalization tank has a capacity of 11,000 gallons, although the influent ranges from 2,000-4,000 gpd during the school year. The influent from the school is concentrated over an 8-9 hour period and the equalization tank equalizes the flow over a 24 hour period. During the summer months, the influent flow is reduced to approximately 4,000 gallons per week. The sludge tank is a 6,000 gallon tank maintained in an anaerobic state. Sludge from the SBR is stored in the sludge tank and influent passes through this compartment before entering the anoxic tank. The anoxic compartment fills the SBR via a jet pump. The sequencing batch reactor was in mid-cycle at the time of inspection and effluent was actively being aerated in the post-aeration tank (Figure 5). The cycle time of the SBR is three hours. Following cycle completion, effluent is decanted from the SBR into the effluent tank prior to disinfection. The effluent is chlorinated via a tablet feed system (Figures 3). Prior to post-aeration, the effluent passes through a V-notch weir where an ultrasonic level transducer measures the flow rate. The dechlorination manhole contains a tablet feed system (Figure 4) and the effluent then flows via gravity through an eight inch line to the outfall into an unnamed tributary of Crabbe Mill Stream. The outfall was not viewed during this inspection as Joe indicated that the pipe extended into the woods a great distance. The area in the vicinity of the outfall appeared densely wooded (Figure 6). The discharge is discontinuous and occurs approximately twice per day during the school year. Discharges last from thirty minutes to one hour.

The January 27, 2010 facility inspection report, completed by Mike Dare pointed out a number of nuances at the facility. The final effluent pH was noted to frequently approach the permit limit of 9.0 S.U. I asked the operators for an update on this and Joe stated that the pH seemed to have "settled down" over time and that no operational changes or chemical addition were necessary to

control the pH. DMR data to date suggests that the final effluent pH is still relatively high, with the max pH reported as 9.0 S.U. for January, February, and March 2010 (April 2009- August 2011 time span).

Due to low flows, particularly in the summer months, the operators must occasionally use seed sludge from Callao WWTP (VA0091421) to maintain proper operation of the plant. At the time of my site visit, Joe indicated that seed sludge is introduced to the plant approximately once per year. He also stated that dog food is used as a supplemental food source for the plant microorganisms.

During my visit the plant appeared in good working order. Since the plant was brought online in 2009 no equipment has required replacement. According to Joe, the mixing pump clogs occasionally, but is easily cleaned by the operators. The control/lab building was viewed and the electronic control panel appeared well kept and the building was orderly. The operators have a pH meter and were conducting a settleability test at the time of my visit. All chemicals were stored undercover with no exposure to storm water.

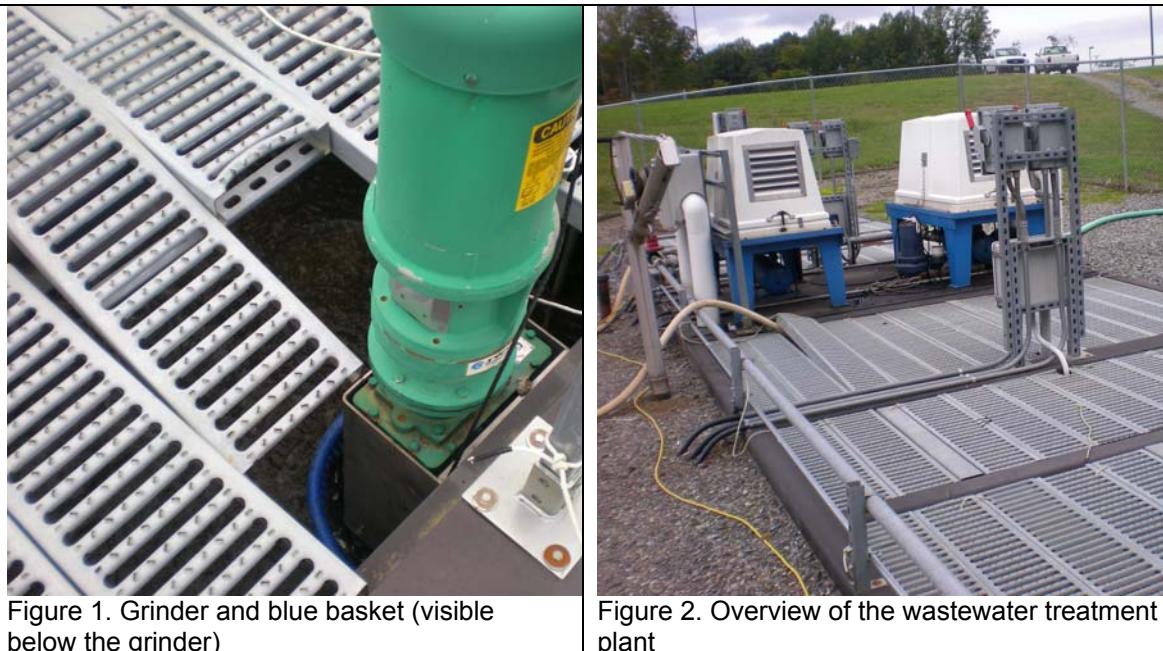




Figure 3. Chlorine contact tank and tablet feed



Figure 4. Dechlorination manhole and sulfur dioxide (SO_2) tablet feed



Figure 5. Post-aeration tank



Figure 6. Woods in the vicinity of the outfall

Attachment F: DMR data, Application Data

DMR data- VA0092061

| Parameter | Monthly Average | Weekly Average | DMR due Date |
|------------|-----------------|----------------|--------------|
| FLOW (MGD) | | | |
| | .003 | .006 | 10-Apr-09 |
| | .003 | .004 | 10-May-09 |
| | .001 | .001 | 10-Jun-09 |
| | .004 | .004 | 10-Jul-09 |
| | .004 | .004 | 10-Aug-09 |
| | .004 | .004 | 10-Sep-09 |
| | .004 | .004 | 10-Oct-09 |
| | .004 | .004 | 10-Nov-09 |
| | .004 | .004 | 10-Dec-09 |
| | .003 | .003 | 10-Jan-10 |
| | .0015 | .0015 | 10-Feb-10 |
| | .002 | .002 | 10-Mar-10 |
| | .003 | .0060 | 10-Apr-10 |
| | .003 | .006 | 10-May-10 |
| | .0035 | .0040 | 10-Jun-10 |
| | .0037 | .0040 | 10-Jul-10 |
| | .0020 | .0020 | 10-Aug-10 |
| | .0020 | .0020 | 10-Sep-10 |
| | .0028 | .0080 | 10-Oct-10 |
| | .0024 | .0040 | 10-Nov-10 |
| | .0023 | .0040 | 10-Dec-10 |
| | .0023 | .0040 | 10-Jan-11 |
| | .0026 | .0040 | 10-Feb-11 |
| | .0039 | .0080 | 10-Mar-11 |
| | .0031 | .0040 | 10-Apr-11 |
| | .003 | .004 | 10-May-11 |
| | .0026 | .0040 | 10-Jun-11 |
| | .0024 | .0040 | 10-Jul-11 |
| | .002 | .002 | 10-Aug-11 |

| Parameter | Minimum | Maximum | DMR due Date |
|--|----------------|----------------|---------------------|
| pH (S. U.) | | | |
| | 7.5 | 8.5 | 10-Apr-09 |
| | 8.0 | 8.5 | 10-May-09 |
| | 7.0 | 7.5 | 10-Jun-09 |
| | 7.4 | 7.7 | 10-Jul-09 |
| | 8.2 | 8.4 | 10-Aug-09 |
| | 7.9 | 8.5 | 10-Sep-09 |
| | 8.2 | 8.9 | 10-Oct-09 |
| | 7.8 | 8.8 | 10-Nov-09 |
| | 8.0 | 8.8 | 10-Dec-09 |
| | 8.3 | 9.0 | 10-Jan-10 |
| | 8.0 | 9.0 | 10-Feb-10 |
| | 8.8 | 9.0 | 10-Mar-10 |
| | 8.0 | 8.9 | 10-Apr-10 |
| | 7.3 | 8.3 | 10-May-10 |
| | 7.5 | 8.3 | 10-Jun-10 |
| | 7.1 | 7.8 | 10-Jul-10 |
| | 7.2 | 8.0 | 10-Aug-10 |
| | 7.1 | 8.0 | 10-Sep-10 |
| | 7.1 | 7.8 | 10-Oct-10 |
| | 7.1 | 8.1 | 10-Nov-10 |
| | 7.0 | 7.8 | 10-Dec-10 |
| | 7.4 | 7.8 | 10-Jan-11 |
| | 7.4 | 8.1 | 10-Feb-11 |
| | 7.7 | 8.4 | 10-Mar-11 |
| | 6.5 | 8.0 | 10-Apr-11 |
| | 7.7 | 8.0 | 10-May-11 |
| | 7.3 | 7.8 | 10-Jun-11 |
| | 7.5 | 7.9 | 10-Jul-11 |
| | 7.3 | 7.7 | 10-Aug-11 |
| 90th percentile max: | | | |
| | | 8.9 | |
| 10th percentile max: | | 7.8 | |

| Parameter | Monthly Average | Weekly Average | Minimum | Maximum | DMR due Date |
|------------------|------------------------|-----------------------|----------------|----------------|---------------------|
| TSS (mg/L) | (mg/L) | (mg/L) | (g/d) | (g/d) | |
| QL= 1.0 mg/L | 3.2 | 3.2 | 24 | 24 | 10-Apr-09 |
| | 1.7 | 1.7 | 26 | 26 | 10-May-09 |
| <QL | <QL | <QL | <QL | <QL | 10-Jun-09 |
| | 17 | 17 | 257 | 257 | 10-Jul-09 |
| | 15.8 | 15.8 | 239 | 239 | 10-Aug-09 |
| <QL | <QL | <QL | <QL | <QL | 10-Sep-09 |
| <QL | <QL | <QL | <QL | <QL | 10-Oct-09 |
| <QL | <QL | <QL | <QL | <QL | 10-Nov-09 |
| <QL | <QL | <QL | <QL | <QL | 10-Dec-09 |
| 6.9 | 6.9 | 78 | 78 | | 10-Jan-10 |
| 31 | 31 | 176 | 176 | | 10-Feb-10 |
| <QL | <QL | <QL | <QL | <QL | 10-Mar-10 |
| 2 | 2 | 23 | 45 | | 10-Apr-10 |
| <QL | <QL | <QL | <QL | <QL | 10-May-10 |
| 1.2 | 1.2 | 16 | 18 | | 10-Jun-10 |
| 2.2 | 2.2 | 31 | 33 | | 10-Jul-10 |
| 5 | 5 | 38 | 38 | | 10-Aug-10 |
| 5 | 5 | 38 | 38 | | 10-Sep-10 |
| <QL | <QL | <QL | <QL | <QL | 10-Oct-10 |
| 15 | 15 | 136 | 227 | | 10-Nov-10 |
| 1.5 | 1.5 | 13 | 23 | | 10-Dec-10 |
| 4 | 4 | 35 | 61 | | 10-Jan-11 |
| 7.4 | 7.4 | 73 | 112 | | 10-Feb-11 |
| <QL | <QL | <QL | <QL | <QL | 10-Mar-11 |
| 4 | 4 | 47 | 61 | | 10-Apr-11 |
| 2.4 | 2.4 | 27 | 36 | | 10-May-11 |
| 3.7 | 3.7 | 36 | 56 | | 10-Jun-11 |
| <QL | <QL | <QL | <QL | <QL | 10-Jul-11 |
| 6.6 | 12.2 | 50 | 92 | | 10-Aug-11 |

| Parameter | Monthly Average | Weekly Average | DMR due Date |
|------------------|------------------------|-----------------------|---------------------|
| TRC (mg/L) | | | |
| QL= 0.10 mg/L | <QL | <QL | 10-Apr-09 |
| | <QL | <QL | 10-May-09 |
| | <QL | <QL | 10-Jun-09 |
| | <QL | <QL | 10-Jul-09 |
| | <QL | <QL | 10-Aug-09 |
| | <QL | <QL | 10-Sep-09 |
| | <QL | <QL | 10-Oct-09 |
| | <QL | <QL | 10-Nov-09 |
| | <QL | <QL | 10-Dec-09 |
| | <QL | <QL | 10-Jan-10 |
| | <QL | <QL | 10-Feb-10 |
| | <QL | <QL | 10-Mar-10 |
| | <QL | <QL | 10-Apr-10 |
| | <QL | <QL | 10-May-10 |
| | <QL | <QL | 10-Jun-10 |
| | <QL | <QL | 10-Jul-10 |
| | <QL | <QL | 10-Aug-10 |
| | <QL | <QL | 10-Sep-10 |
| | <QL | <QL | 10-Oct-10 |
| | <QL | <QL | 10-Nov-10 |
| | <QL | <QL | 10-Dec-10 |
| | <QL | <QL | 10-Jan-11 |
| | <QL | <QL | 10-Feb-11 |
| | <QL | <QL | 10-Mar-11 |
| | <QL | <QL | 10-Apr-11 |
| | <QL | <QL | 10-May-11 |
| | <QL | <QL | 10-Jun-11 |
| | <QL | <QL | 10-Jul-11 |
| | <QL | <QL | 10-Aug-11 |

| Parameter | Minimum | DMR due Date |
|------------------|----------------|---------------------|
| D.O. (mg/L) | | |
| | 10.58 | 10-Apr-09 |
| | 9.05 | 10-May-09 |
| | 12.6 | 10-Jun-09 |
| | 9.0 | 10-Jul-09 |
| | 8.3 | 10-Aug-09 |
| | 7.5 | 10-Sep-09 |
| | 7.6 | 10-Oct-09 |
| | 8.0 | 10-Nov-09 |
| | 6.9 | 10-Dec-09 |
| | 7.7 | 10-Jan-10 |
| | 6.4 | 10-Feb-10 |
| | 13 | 10-Mar-10 |
| | 9.6 | 10-Apr-10 |
| | 8.5 | 10-May-10 |
| | 8.5 | 10-Jun-10 |
| | 8.1 | 10-Jul-10 |
| | 8.0 | 10-Aug-10 |
| | 8.6 | 10-Sep-10 |
| | 8.4 | 10-Oct-10 |
| | 9.6 | 10-Nov-10 |
| | 12.5 | 10-Dec-10 |
| | 13.2 | 10-Jan-11 |
| | 15.0 | 10-Feb-11 |
| | 10.4 | 10-Mar-11 |
| | 12.2 | 10-Apr-11 |
| | 10.4 | 10-May-11 |
| | 10.1 | 10-Jun-11 |
| | 9.6 | 10-Jul-11 |
| | 8.0 | 10-Aug-11 |

| Parameter | Monthly Average | Weekly Average | DMR due Date |
|-------------------|-----------------|----------------|--------------|
| Ammonia- N (mg/L) | | | |
| QL = 0.20 mg/L | <.1 | <.1 | 10-Apr-09 |
| | <.1 | <.1 | 10-May-09 |
| | .12 | .12 | 10-Jun-09 |
| | 1.31 | 1.31 | 10-Jul-09 |
| | .61 | .61 | 10-Aug-09 |
| | <QL | <QL | 10-Sep-09 |
| | .24 | .24 | 10-Oct-09 |
| | .17 | .17 | 10-Nov-09 |
| | .16 | .16 | 10-Dec-09 |
| | .08 | .08 | 10-Jan-10 |
| | 32 | 32 | 10-Feb-10 |
| | .2 | .2 | 10-Mar-10 |
| | .5 | .5 | 10-Apr-10 |
| | 1.3 | 1.3 | 10-May-10 |
| | 1.03 | 1.03 | 10-Jun-10 |
| | 1.08 | 1.08 | 10-Jul-10 |
| | .62 | .62 | 10-Aug-10 |
| | .46 | .46 | 10-Sep-10 |
| | .48 | .48 | 10-Oct-10 |
| | 2.07 | 2.07 | 10-Nov-10 |
| | 1.76 | 1.76 | 10-Dec-10 |
| | .75 | .75 | 10-Jan-11 |
| | .94 | .94 | 10-Feb-11 |
| | 2.68 | 2.68 | 10-Mar-11 |
| | 2.79 | 2.79 | 10-Apr-11 |
| | .57 | .57 | 10-May-11 |
| | .75 | .75 | 10-Jun-11 |
| | .09 | .09 | 10-Jul-11 |
| | .04 | .04 | 10-Aug-11 |

Note: Highlighted values are those which are in excess of the 2012 final effluent limitation for Ammonia-N (0.48 mg/L). A schedule of compliance is afforded for the more restrictive limit, given that the plant is not presently meeting the final limit. See permit Part I.D. Schedule of Compliance for Ammonia-N.

| Parameter | Monthly Average | Weekly Average | Monthly Average | Weekly Average | DMR due Date |
|----------------|-----------------|----------------|-----------------|----------------|--------------|
| TKN | (mg/L) | (mg/L) | (g/d) | (g/d) | |
| QL = 0.50 mg/L | <QL | <QL | <QL | <QL | 10-Apr-09 |
| | <QL | <QL | <QL | <QL | 10-May-09 |
| | <QL | <QL | <QL | <QL | 10-Jun-09 |
| | 1.72 | 1.72 | 26 | 26 | 10-Jul-09 |
| | .98 | .98 | 15 | 15 | 10-Aug-09 |
| | <QL | <QL | <QL | <QL | 10-Sep-09 |
| | <QL | <QL | <QL | <QL | 10-Oct-09 |
| | <QL | <QL | <QL | <QL | 10-Nov-09 |
| | <QL | <QL | <QL | <QL | 10-Dec-09 |
| | 1.3 | 1.3 | 15 | 15 | 10-Jan-10 |
| | 35 | 35 | 199 | 199 | 10-Feb-10 |
| | <QL | <QL | <QL | <QL | 10-Mar-10 |
| | .9 | .9 | 10 | 10 | 10-Apr-10 |
| | 1.9 | 1.9 | 14 | 14 | 10-May-10 |
| | 1.5 | 1.5 | 20 | 20 | 10-Jun-10 |
| | 1.32 | 1.32 | 19 | 19 | 10-Jul-10 |
| | 1.08 | 1.08 | 8 | 8 | 10-Aug-10 |
| | .90 | .90 | 7 | 7 | 10-Sep-10 |
| | 1.05 | 1.05 | 11 | 11 | 10-Oct-10 |
| | 2.38 | 2.38 | 22 | 22 | 10-Nov-10 |
| | 4.16 | 4.16 | 36 | 36 | 10-Dec-10 |
| | 2.0 | 2.0 | 17 | 17 | 10-Jan-11 |
| | 1.12 | 1.12 | 11 | 11 | 10-Feb-11 |
| | 2.98 | 2.98 | 44 | 44 | 10-Mar-11 |
| | 2.92 | 2.92 | 34 | 34 | 10-Apr-11 |
| | 1.02 | 1.02 | 9 | 9 | 10-May-11 |
| | 1.06 | 1.06 | 10 | 10 | 10-Jun-11 |
| | <QL | <QL | <QL | <QL | 10-Jul-11 |
| | <QL | <QL | <QL | <QL | 10-Aug-11 |

| Parameter | Monthly Average | Weekly Average | Monthly Average | Weekly Average | DMR due Date |
|-------------------|-----------------|----------------|-----------------|----------------|--------------|
| cBOD ₅ | (mg/L) | (mg/L) | (g/d) | (g/d) | |
| QL = 5 mg/L | <QL | <QL | <QL | <QL | 10-Apr-09 |
| | <QL | <QL | <QL | <QL | 10-May-09 |
| | <QL | <QL | <QL | <QL | 10-Jun-09 |
| | <5 | <5 | 76 | 76 | 10-Jul-09 |
| | <5 | <5 | <76 | <76 | 10-Aug-09 |
| | <QL | <QL | <QL | <QL | 10-Sep-09 |
| | <QL | <QL | <QL | <QL | 10-Oct-09 |
| | <QL | <QL | <QL | <QL | 10-Nov-09 |
| | <QL | <QL | <QL | <QL | 10-Dec-09 |
| | <QL | <QL | <QL | <QL | 10-Jan-10 |
| | 11 | 11 | 63 | 63 | 10-Feb-10 |
| | <QL | <QL | <QL | <QL | 10-Mar-10 |
| | <QL | <QL | <QL | <QL | 10-Apr-10 |
| | <QL | <QL | <QL | <QL | 10-May-10 |
| | <QL | <QL | <QL | <QL | 10-Jun-10 |
| | <QL | <QL | <QL | <QL | 10-Jul-10 |
| | <QL | <QL | <QL | <QL | 10-Aug-10 |
| | <QL | <QL | <QL | <QL | 10-Sep-10 |
| | <QL | <QL | <QL | <QL | 10-Oct-10 |
| | 6 | 6 | 91 | 91 | 10-Nov-10 |
| | <QL | <QL | <QL | <QL | 10-Dec-10 |
| | 5.7 | 5.7 | 86 | 86 | 10-Jan-11 |
| | <QL | <QL | <QL | <QL | 10-Feb-11 |
| | <QL | <QL | <QL | <QL | 10-Mar-11 |
| | <3 | <3 | <45 | <45 | 10-Apr-11 |
| | <QL | <QL | <QL | <QL | 10-May-11 |
| | <QL | <QL | <QL | <QL | 10-Jun-11 |
| | <QL | <QL | <QL | <QL | 10-Jul-11 |
| | <QL | <QL | <QL | <QL | 10-Aug-11 |

Application (EPA Form 2A) data- VA0092061 Northumberland Middle/High School WWTP

| Parameter | Maximum Daily Value | | Average Daily Value | | |
|----------------------|---------------------|-------|---------------------|-------|-------------|
| | Value | Units | Value | Units | No. Samples |
| pH (minimum) | 7.4 | S.U. | | | |
| pH (maximum) | 8.6 | S.U. | | | |
| Flow Rate | 0.0080 | MGD | 0.0025 | MGD | 17 |
| Temperature (Winter) | 25 | °C | 19 | °C | 28 |
| Temperature (Summer) | 29 | °C | 26 | °C | 30 |

| Pollutant | Maximum Daily Discharge | | Average Daily Discharge | | |
|-------------------|-------------------------|----------|-------------------------|----------|-------------|
| | Conc. | Units | Conc. | Units | No. Samples |
| cBOD ₅ | <5 | mg/L | <5 | mg/L | 3 |
| Fecal Coliform | 8 | N/100 ml | 3 (geometric mean) | N/100 ml | 4 |
| TSS | <1 | mg/L | <1 | mg/L | 3 |

cBOD₅ and TSS effluent values reported on the application are below existing and proposed permit limitations. The geometric mean of the four fecal coliform results submitted with the application is below the aquatic water quality criteria for fecal coliform (14 N/100ml) as defined by 9VAC25-260-160 and applicable to shellfish waters. No further evaluation is needed.

Effluent Temperature Data (June and February 2011)

| Date | Temp (oC) |
|-----------|-----------|
| 6/1/2011 | 25 |
| 6/2/2011 | 27 |
| 6/3/2011 | 28 |
| 6/4/2011 | 23 |
| 6/5/2011 | 28 |
| 6/6/2011 | 28 |
| 6/7/2011 | 27 |
| 6/8/2011 | 27 |
| 6/9/2011 | 27 |
| 6/10/2011 | 28 |
| 6/11/2011 | 27 |
| 6/12/2011 | 27 |
| 6/13/2011 | 26 |
| 6/14/2011 | 23 |
| 6/15/2011 | 22 |
| 6/16/2011 | 25 |
| 6/17/2011 | 24 |
| 6/18/2011 | 25 |
| 6/19/2011 | 24 |
| 6/20/2011 | 22 |
| 6/21/2011 | 22 |
| 6/22/2011 | 28 |
| 6/23/2011 | 28 |
| 6/24/2011 | 28 |
| 6/25/2011 | 22 |
| 6/26/2011 | 23 |
| 6/27/2011 | 29 |
| 6/28/2011 | 29 |
| 6/29/2011 | 28 |
| 6/30/2011 | 27 |
| 2/1/2011 | 19 |
| 2/2/2011 | 20 |
| 2/3/2011 | 18 |
| 2/4/2011 | 19 |

| | |
|-----------|----|
| 2/5/2011 | 19 |
| 2/6/2011 | 20 |
| 2/7/2011 | 22 |
| 2/8/2011 | 20 |
| 2/9/2011 | 20 |
| 2/10/2011 | 19 |
| 2/11/2011 | 21 |
| 2/12/2011 | 21 |
| 2/13/2011 | 23 |
| 2/14/2011 | 25 |
| 2/15/2011 | 20 |
| 2/16/2011 | 21 |
| 2/17/2011 | 18 |
| 2/18/2011 | 18 |
| 2/19/2011 | 18 |
| 2/20/2011 | 18 |
| 2/21/2011 | 18 |
| 2/22/2011 | 17 |
| 2/23/2011 | 18 |
| 2/24/2011 | 18 |
| 2/25/2011 | 18 |
| 2/26/2011 | 19 |
| 2/27/2011 | 19 |
| 2/28/2011 | 19 |

90th percentile: 28°C
 10th percentile: 18°C

**Attachment G: MSTRANTI data source report, MSTRANTI,
Stats.exe results**

MSTRANTI DATA SOURCE REPORT

| Stream information | |
|------------------------------|--|
| Mean Hardness | Due to the intermittent nature of the receiving stream, effluent data is used to characterize the receiving stream. See effluent information, below. |
| 90% Temperature (annual) | |
| 90% Temperature (wet season) | |
| 90% Maximum pH | |
| 10% Maximum pH | |
| Tier Designation | Tier Determination (Tier 1) |
| Stream Flows | |
| All Data | Flow Frequency Determination - 0.0 MGD at conservative low flow ambient conditions due to intermittent nature of the stream |
| Mixing Information | |
| All Data | 100% mix assumption for 0.0 MGD conservative low flows |
| Effluent Information | |
| Mean Hardness | Conservative assumption absent of data (25 mg/L as CaCO ₃) |
| 90% Temperature (annual) | Calculate from effluent temperature data |
| 90% Maximum pH | Calculated from DMR data |
| 10% Maximum pH | Calculated from DMR data |
| Discharge flow | Design Flow (0.016 MGD) |

Data Location:

Flow Frequency Memo – Attachment A
 DMR data- Attachment F

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Northumberland Co. Middle/High School WWTP

Permit No.: VA0092061

Receiving Stream: Crabbe Mill Stream UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

| | |
|---|----------|
| Mean Hardness (as CaCO ₃) = | 25 mg/L |
| 90% Temperature (Annual) = | 28 deg C |
| 90% Temperature (Wet season) = | NA deg C |
| 90% Maximum pH = | 8.9 SU |
| 10% Maximum pH = | 7.8 SU |
| Tier Designation (1 or 2) = | 1 |
| Public Water Supply (PWS) Y/N? = | n |
| Trout Present Y/N? = | n |
| Early Life Stages Present Y/N? = | y |

Stream Flows

| | |
|----------------------|-------|
| 1Q10 (Annual) = | 0 MGD |
| 7Q10 (Annual) = | 0 MGD |
| 30Q10 (Annual) = | 0 MGD |
| 1Q10 (Wet season) = | 0 MGD |
| 30Q10 (Wet season) = | 0 MGD |
| Harmonic Mean = | 0 MGD |

Mixing Information

| | |
|-------------------------|-------|
| Annual - 1Q10 Mix = | 100 % |
| - 7Q10 Mix = | 100 % |
| - 30Q10 Mix = | 100 % |
| Wet Season - 1Q10 Mix = | 100 % |
| - 30Q10 Mix = | 100 % |

Effluent Information

| | |
|---|-----------|
| Mean Hardness (as CaCO ₃) = | 25 mg/L |
| 90% Temp (Annual) = | 28 deg C |
| 90% Temp (Wet season) = | NA deg C |
| 90% Maximum pH = | 8.9 SU |
| 10% Maximum pH = | 7.8 SU |
| Discharge Flow = | 0.016 MGD |

| Parameter (ug/l unless noted) | Background Conc. | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | |
|---|---------------------|------------------------|----------|----------|---------|-----------------------|----------|----------|---------|--------------------------|---------|----------|----|-----------------------------|---------|----------|----|---------------------------|----------|----------|---------|
| | | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH |
| Acenaphthene | 5 | -- | -- | na | 9.9E+02 | -- | -- | na | 9.9E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 9.9E+02 |
| Acrolein | 0 | -- | -- | na | 9.3E+00 | -- | -- | na | 9.3E+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 9.3E+00 |
| Acrylonitrile ^c | 0 | -- | -- | na | 2.5E+00 | -- | -- | na | 2.5E+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.5E+00 |
| Aldrin ^c | 0 | 3.0E+00 | -- | na | 5.0E-04 | 3.0E+00 | -- | na | 5.0E-04 | -- | -- | -- | -- | -- | -- | -- | -- | 3.0E+00 | -- | na | 5.0E-04 |
| Ammonia-N (mg/l) (Yearly) | 0 | 1.56E+00 | 2.37E-01 | na | -- | 1.56E+00 | 2.37E-01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.56E+00 | 2.37E-01 | na | -- |
| Ammonia-N (mg/l) (High Flow) | 0 | 1.56E+00 | #VALUE! | na | -- | 1.56E+00 | #VALUE! | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.56E+00 | #VALUE! | na | -- |
| Anthracene | 0 | -- | -- | na | 4.0E+04 | -- | -- | na | 4.0E+04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.0E+04 |
| Antimony | 0 | -- | -- | na | 6.4E+02 | -- | -- | na | 6.4E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 6.4E+02 |
| Arsenic | 0 | 3.4E+02 | 1.5E+02 | na | -- | 3.4E+02 | 1.5E+02 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.4E+02 | 1.5E+02 | na | -- |
| Barium | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- |
| Benzene ^c | 0 | -- | -- | na | 5.1E+02 | -- | -- | na | 5.1E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.1E+02 |
| Benzidine ^c | 0 | -- | -- | na | 2.0E-03 | -- | -- | na | 2.0E-03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.0E-03 |
| Benzo (a) anthracene ^c | 0 | -- | -- | na | 1.8E-01 | -- | -- | na | 1.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-01 |
| Benzo (b) fluoranthene ^c | 0 | -- | -- | na | 1.8E-01 | -- | -- | na | 1.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-01 |
| Benzo (k) fluoranthene ^c | 0 | -- | -- | na | 1.8E-01 | -- | -- | na | 1.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-01 |
| Benzo (a) pyrene ^c | 0 | -- | -- | na | 1.8E-01 | -- | -- | na | 1.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-01 |
| Bis2-Chloroethyl Ether ^c | 0 | -- | -- | na | 5.3E+00 | -- | -- | na | 5.3E+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.3E+00 |
| Bis2-Chloroisopropyl Ether | 0 | -- | -- | na | 6.5E+04 | -- | -- | na | 6.5E+04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 6.5E+04 |
| Bis 2-Ethylhexyl Phthalate ^c | 0 | -- | -- | na | 2.2E+01 | -- | -- | na | 2.2E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.2E+01 |
| Bromoform ^c | 0 | -- | -- | na | 1.4E+03 | -- | -- | na | 1.4E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.4E+03 |
| Butylbenzylphthalate | 0 | -- | -- | na | 1.9E+03 | -- | -- | na | 1.9E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.9E+03 |
| Cadmium | 0 | 8.2E-01 | 3.8E-01 | na | -- | 8.2E-01 | 3.8E-01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 8.2E-01 | 3.8E-01 | na | -- |
| Carbon Tetrachloride ^c | 0 | -- | -- | na | 1.6E+01 | -- | -- | na | 1.6E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.6E+01 |
| Chlordane ^c | 0 | 2.4E+00 | 4.3E-03 | na | 8.1E-03 | 2.4E+00 | 4.3E-03 | na | 8.1E-03 | -- | -- | -- | -- | -- | -- | -- | -- | 2.4E+00 | 4.3E-03 | na | 8.1E-03 |
| Chloride | 0 | 8.6E+05 | 2.3E+05 | na | -- | 8.6E+05 | 2.3E+05 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 8.6E+05 | 2.3E+05 | na | -- |
| TRC | 0 | 1.9E+01 | 1.1E+01 | na | -- | 1.9E+01 | 1.1E+01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.9E+01 | 1.1E+01 | na | -- |
| Chlorobenzene | 0 | -- | -- | na | 1.6E+03 | -- | -- | na | 1.6E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.6E+03 |

| Parameter (ug/l unless noted) | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | |
|--|------------|------------------------|---------|---------|----------|-----------------------|---------|---------|----------|--------------------------|-------|---------|----------|-----------------------------|-------|---------|----------|---------------------------|---------|---------|----------|---------|
| | | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH |
| Chlorodibromomethane ^c | 0 | -- | -- | -- | na | 1.3E+02 | -- | -- | na | 1.3E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.3E+02 |
| Chloroform | 0 | -- | -- | -- | na | 1.1E+04 | -- | -- | na | 1.1E+04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.1E+04 |
| 2-Chloronaphthalene | 0 | -- | -- | -- | na | 1.6E+03 | -- | -- | na | 1.6E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.6E+03 |
| 2-Chlorophenol | 0 | -- | -- | -- | na | 1.5E+02 | -- | -- | na | 1.5E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.5E+02 |
| Chlorpyrifos | 0 | 8.3E-02 | 4.1E-02 | na | -- | 8.3E-02 | 4.1E-02 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 8.3E-02 | 4.1E-02 | na | -- | |
| Chromium III | 0 | 1.8E+02 | 2.4E+01 | na | -- | 1.8E+02 | 2.4E+01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.8E+02 | 2.4E+01 | na | -- | |
| Chromium VI | 0 | 1.6E+01 | 1.1E+01 | na | -- | 1.6E+01 | 1.1E+01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.6E+01 | 1.1E+01 | na | -- | |
| Chromium, Total | 0 | -- | -- | 1.0E+02 | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- |
| Chrysene ^c | 0 | -- | -- | -- | na | 1.8E-02 | -- | -- | na | 1.8E-02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-02 |
| Copper | 0 | 3.6E+00 | 2.7E+00 | na | -- | 3.6E+00 | 2.7E+00 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.6E+00 | 2.7E+00 | na | -- | |
| Cyanide, Free | 0 | 2.2E+01 | 5.2E+00 | na | 1.6E+04 | 2.2E+01 | 5.2E+00 | na | 1.6E+04 | -- | -- | -- | -- | -- | -- | -- | -- | 2.2E+01 | 5.2E+00 | na | 1.6E+04 | |
| DDD ^c | 0 | -- | -- | na | 3.1E-03 | -- | -- | na | 3.1E-03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.1E-03 | |
| DDE ^c | 0 | -- | -- | na | 2.2E-03 | -- | -- | na | 2.2E-03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.2E-03 | |
| DDT ^c | 0 | 1.1E+00 | 1.0E-03 | na | 2.2E-03 | 1.1E+00 | 1.0E-03 | na | 2.2E-03 | -- | -- | -- | -- | -- | -- | -- | -- | 1.1E+00 | 1.0E-03 | na | 2.2E-03 | |
| Demeton | 0 | -- | 1.0E-01 | na | -- | -- | 1.0E-01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.0E-01 | na | -- | |
| Diazinon | 0 | 1.7E-01 | 1.7E-01 | na | -- | 1.7E-01 | 1.7E-01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.7E-01 | 1.7E-01 | na | -- | |
| Dibenz(a,h)anthracene ^c | 0 | -- | -- | na | 1.8E-01 | -- | -- | na | 1.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-01 | |
| 1,2-Dichlorobenzene | 0 | -- | -- | na | 1.3E+03 | -- | -- | na | 1.3E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.3E+03 | |
| 1,3-Dichlorobenzene | 0 | -- | -- | na | 9.6E+02 | -- | -- | na | 9.6E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 9.6E+02 | |
| 1,4-Dichlorobenzene | 0 | -- | -- | na | 1.9E+02 | -- | -- | na | 1.9E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.9E+02 | |
| 3,3-Dichlorobenzidine ^c | 0 | -- | -- | na | 2.8E-01 | -- | -- | na | 2.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.8E-01 | |
| Dichlorobromomethane ^c | 0 | -- | -- | na | 1.7E+02 | -- | -- | na | 1.7E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.7E+02 | |
| 1,2-Dichloroethane ^c | 0 | -- | -- | na | 3.7E+02 | -- | -- | na | 3.7E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.7E+02 | |
| 1,1-Dichloroethylene | 0 | -- | -- | na | 7.1E+03 | -- | -- | na | 7.1E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 7.1E+03 | |
| 1,2-trans-dichloroethylene | 0 | -- | -- | na | 1.0E+04 | -- | -- | na | 1.0E+04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.0E+04 | |
| 2,4-Dichlorophenol | 0 | -- | -- | na | 2.9E+02 | -- | -- | na | 2.9E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.9E+02 | |
| 2,4-Dichlorophenoxyacetic acid (2,4-D) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |
| 1,2-Dichloropropane ^c | 0 | -- | -- | na | 1.5E+02 | -- | -- | na | 1.5E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.5E+02 | |
| 1,3-Dichloropropene ^c | 0 | -- | -- | na | 2.1E+02 | -- | -- | na | 2.1E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.1E+02 | |
| Dieldrin ^c | 0 | 2.4E-01 | 5.6E-02 | na | 5.4E-04 | 2.4E-01 | 5.6E-02 | na | 5.4E-04 | -- | -- | -- | -- | -- | -- | -- | -- | 2.4E-01 | 5.6E-02 | na | 5.4E-04 | |
| Diethyl Phthalate | 0 | -- | -- | na | 4.4E+04 | -- | -- | na | 4.4E+04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.4E+04 | |
| 2,4-Dimethylphenol | 0 | -- | -- | na | 8.5E+02 | -- | -- | na | 8.5E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 8.5E+02 | |
| Dimethyl Phthalate | 0 | -- | -- | na | 1.1E+06 | -- | -- | na | 1.1E+06 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.1E+06 | |
| Di-n-Butyl Phthalate | 0 | -- | -- | na | 4.5E+03 | -- | -- | na | 4.5E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.5E+03 | |
| 2,4 Dinitrophenol | 0 | -- | -- | na | 5.3E+03 | -- | -- | na | 5.3E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.3E+03 | |
| 2-Methyl-4,6-Dinitrophenol | 0 | -- | -- | na | 2.8E+02 | -- | -- | na | 2.8E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.8E+02 | |
| 2,4-Dinitrotoluene ^c | 0 | -- | -- | na | 3.4E+01 | -- | -- | na | 3.4E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.4E+01 | |
| Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin | 0 | -- | -- | na | 5.1E-08 | -- | -- | na | 5.1E-08 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.1E-08 | |
| 1,2-Diphenylhydrazine ^c | 0 | -- | -- | na | 2.0E+00 | -- | -- | na | 2.0E+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.0E+00 | |
| Alpha-Endosulfan | 0 | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | -- | -- | -- | -- | -- | -- | -- | -- | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | |
| Beta-Endosulfan | 0 | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | -- | -- | -- | -- | -- | -- | -- | -- | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | |
| Alpha + Beta Endosulfan | 0 | 2.2E-01 | 5.6E-02 | -- | -- | 2.2E-01 | 5.6E-02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.2E-01 | 5.6E-02 | -- | -- | |
| Endosulfan Sulfate | 0 | -- | -- | na | 8.9E+01 | -- | -- | na | 8.9E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 8.9E+01 | |
| Endrin | 0 | 8.6E-02 | 3.6E-02 | na | 6.0E-02 | 8.6E-02 | 3.6E-02 | na | 6.0E-02 | -- | -- | -- | -- | -- | -- | -- | -- | 8.6E-02 | 3.6E-02 | na | 6.0E-02 | |
| Endrin Aldehyde | 0 | -- | -- | na | 3.0E-01 | -- | -- | na | 3.0E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.0E-01 | |

| Parameter (ug/l unless noted) | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | |
|--|------------|------------------------|---------|---------|----------|-----------------------|---------|---------|----------|--------------------------|-------|---------|----------|-----------------------------|-------|---------|----------|---------------------------|---------|---------|----------|---------|
| | | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH |
| Ethylbenzene | 0 | -- | -- | -- | na | 2.1E+03 | -- | -- | na | 2.1E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.1E+03 |
| Fluoranthene | 0 | -- | -- | -- | na | 1.4E+02 | -- | -- | na | 1.4E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.4E+02 |
| Fluorene | 0 | -- | -- | -- | na | 5.3E+03 | -- | -- | na | 5.3E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.3E+03 |
| Foaming Agents | 0 | -- | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- |
| Guthion | 0 | -- | 1.0E-02 | na | -- | -- | -- | 1.0E-02 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.0E-02 | na | -- |
| Heptachlor C | 0 | 5.2E-01 | 3.8E-03 | na | 7.9E-04 | 5.2E-01 | 3.8E-03 | na | 7.9E-04 | -- | -- | -- | -- | -- | -- | -- | -- | 5.2E-01 | 3.8E-03 | na | 7.9E-04 | |
| Heptachlor Epoxide C | 0 | 5.2E-01 | 3.8E-03 | na | 3.9E-04 | 5.2E-01 | 3.8E-03 | na | 3.9E-04 | -- | -- | -- | -- | -- | -- | -- | -- | 5.2E-01 | 3.8E-03 | na | 3.9E-04 | |
| Hexachlorobenzene C | 0 | -- | -- | na | 2.9E-03 | -- | -- | na | 2.9E-03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.9E-03 | |
| Hexachlorobutadiene C | 0 | -- | -- | na | 1.8E+02 | -- | -- | na | 1.8E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E+02 | |
| Hexachlorocyclohexane | | | | | | | | | | | | | | | | | | | | | | |
| Alpha-BHC C | 0 | -- | -- | na | 4.9E-02 | -- | -- | na | 4.9E-02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.9E-02 |
| Hexachlorocyclohexane | | | | | | | | | | | | | | | | | | | | | | |
| Beta-BHC C | 0 | -- | -- | na | 1.7E-01 | -- | -- | na | 1.7E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.7E-01 |
| Hexachlorocyclohexane | | | | | | | | | | | | | | | | | | | | | | |
| Gamma-BHC C (Lindane) | 0 | 9.5E-01 | na | na | 1.8E+00 | 9.5E-01 | -- | na | 1.8E+00 | -- | -- | -- | -- | -- | -- | -- | -- | 9.5E-01 | -- | na | 1.8E+00 | |
| Hexachlorocyclopentadiene | 0 | -- | -- | na | 1.1E+03 | -- | -- | na | 1.1E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.1E+03 | |
| Hexachloroethane C | 0 | -- | -- | na | 3.3E+01 | -- | -- | na | 3.3E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.3E+01 | |
| Hydrogen Sulfide | 0 | -- | 2.0E+00 | na | -- | -- | 2.0E+00 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.0E+00 | na | -- | -- | |
| Indeno (1,2,3-cd) pyrene C | 0 | -- | -- | na | 1.8E-01 | -- | -- | na | 1.8E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.8E-01 | |
| Iron | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |
| Isophorone C | 0 | -- | -- | na | 9.6E+03 | -- | -- | na | 9.6E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 9.6E+03 | |
| Kepone | 0 | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0E+00 | na | -- | -- | |
| Lead | 0 | 2.0E+01 | 2.3E+00 | na | -- | 2.0E+01 | 2.3E+00 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.0E+01 | 2.3E+00 | na | -- | |
| Malathion | 0 | -- | 1.0E-01 | na | -- | -- | 1.0E-01 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.0E-01 | na | -- | -- | |
| Manganese | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |
| Mercury | 0 | 1.4E+00 | 7.7E-01 | -- | -- | 1.4E+00 | 7.7E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.4E+00 | 7.7E-01 | -- | -- | |
| Methyl Bromide | 0 | -- | -- | na | 1.5E+03 | -- | -- | na | 1.5E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.5E+03 | |
| Methylene Chloride C | 0 | -- | -- | na | 5.9E+03 | -- | -- | na | 5.9E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.9E+03 | |
| Methoxychlor | 0 | -- | 3.0E-02 | na | -- | -- | 3.0E-02 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.0E-02 | na | -- | -- | |
| Mirex | 0 | -- | 0.0E+00 | na | -- | -- | 0.0E+00 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0E+00 | na | -- | -- | |
| Nickel | 0 | 5.6E+01 | 6.3E+00 | na | 4.6E+03 | 5.6E+01 | 6.3E+00 | na | 4.6E+03 | -- | -- | -- | -- | -- | -- | -- | -- | 5.6E+01 | 6.3E+00 | na | 4.6E+03 | |
| Nitrate (as N) | 0 | -- | -- | na | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |
| Nitrobenzene | 0 | -- | -- | na | 6.9E+02 | -- | -- | na | 6.9E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 6.9E+02 | |
| N-Nitrosodimethylamine C | 0 | -- | -- | na | 3.0E+01 | -- | -- | na | 3.0E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.0E+01 | |
| N-Nitrosodiphenylamine C | 0 | -- | -- | na | 6.0E+01 | -- | -- | na | 6.0E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 6.0E+01 | |
| N-Nitrosodi-n-propylamine C | 0 | -- | -- | na | 5.1E+00 | -- | -- | na | 5.1E+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 5.1E+00 | |
| Nonylphenol | 0 | 2.8E+01 | 6.6E+00 | -- | -- | 2.8E+01 | 6.6E+00 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.8E+01 | 6.6E+00 | na | -- | |
| Parathion | 0 | 6.5E-02 | 1.3E-02 | na | -- | 6.5E-02 | 1.3E-02 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6.5E-02 | 1.3E-02 | na | -- | |
| PCB Total C | 0 | -- | 1.4E-02 | na | 6.4E-04 | -- | 1.4E-02 | na | 6.4E-04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.4E-02 | na | 6.4E-04 | |
| Pentachlorophenol C | 0 | 1.9E+01 | 1.5E+01 | na | 3.0E+01 | 1.9E+01 | 1.5E+01 | na | 3.0E+01 | -- | -- | -- | -- | -- | -- | -- | -- | 1.9E+01 | 1.5E+01 | na | 3.0E+01 | |
| Phenol | 0 | -- | -- | na | 8.6E+05 | -- | -- | na | 8.6E+05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 8.6E+05 | |
| Pyrene | 0 | -- | -- | na | 4.0E+03 | -- | -- | na | 4.0E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.0E+03 | |
| Radionuclides Gross Alpha Activity (pCi/L) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |
| Beta and Photon Activity (mrem/yr) | 0 | -- | -- | na | 4.0E+00 | -- | -- | na | 4.0E+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.0E+00 | |
| Radium 226 + 228 (pCi/L) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |
| Uranium (ug/l) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- | |

| Parameter (ug/l unless noted) | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | |
|--|------------|------------------------|---------|---------|----------|-----------------------|---------|---------|----------|--------------------------|-------|---------|----------|-----------------------------|-------|---------|----------|---------------------------|----------------|---------|----------------|
| | | Conc. | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) | HH | Acute | Chronic | HH (PWS) |
| Selenium, Total Recoverable | 0 | 2.0E+01 | 5.0E+00 | na | 4.2E+03 | 2.0E+01 | 5.0E+00 | na | 4.2E+03 | -- | -- | -- | -- | -- | -- | -- | -- | 2.0E+01 | 5.0E+00 | na | 4.2E+03 |
| Silver | 0 | 3.2E-01 | -- | na | -- | 3.2E-01 | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.2E-01 | -- | na | -- |
| Sulfate | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- |
| 1,1,2,2-Tetrachloroethane ^C | 0 | -- | -- | na | 4.0E+01 | -- | -- | na | 4.0E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.0E+01 |
| Tetrachloroethylene ^C | 0 | -- | -- | na | 3.3E+01 | -- | -- | na | 3.3E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.3E+01 |
| Thallium | 0 | -- | -- | na | 4.7E-01 | -- | -- | na | 4.7E-01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 4.7E-01 |
| Toluene | 0 | -- | -- | na | 6.0E+03 | -- | -- | na | 6.0E+03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 6.0E+03 |
| Total dissolved solids | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- |
| Toxaphene ^C | 0 | 7.3E-01 | 2.0E-04 | na | 2.8E-03 | 7.3E-01 | 2.0E-04 | na | 2.8E-03 | -- | -- | -- | -- | -- | -- | -- | -- | 7.3E-01 | 2.0E-04 | na | 2.8E-03 |
| Tributyltin | 0 | 4.6E-01 | 7.2E-02 | na | -- | 4.6E-01 | 7.2E-02 | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4.6E-01 | 7.2E-02 | na | -- |
| 1,2,4-Trichlorobenzene | 0 | -- | -- | na | 7.0E+01 | -- | -- | na | 7.0E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 7.0E+01 |
| 1,1,2-Trichloroethane ^C | 0 | -- | -- | na | 1.6E+02 | -- | -- | na | 1.6E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 1.6E+02 |
| Trichloroethylene ^C | 0 | -- | -- | na | 3.0E+02 | -- | -- | na | 3.0E+02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 3.0E+02 |
| 2,4,6-Trichlorophenol ^C | 0 | -- | -- | na | 2.4E+01 | -- | -- | na | 2.4E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.4E+01 |
| 2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex) | 0 | -- | -- | na | -- | -- | -- | na | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | -- |
| Vinyl Chloride ^C | 0 | -- | -- | na | 2.4E+01 | -- | -- | na | 2.4E+01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | na | 2.4E+01 |
| Zinc | 0 | 3.6E+01 | 3.6E+01 | na | 2.6E+04 | 3.6E+01 | 3.6E+01 | na | 2.6E+04 | -- | -- | -- | -- | -- | -- | -- | -- | 3.6E+01 | 3.6E+01 | na | 2.6E+04 |

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipalities
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

| Metal | Target Value (SSTV) |
|--------------|---------------------|
| Antimony | 6.4E+02 |
| Arsenic | 9.0E+01 |
| Barium | na |
| Cadmium | 2.3E-01 |
| Chromium III | 1.4E+01 |
| Chromium VI | 6.4E+00 |
| Copper | 1.5E+00 |
| Iron | na |
| Lead | 1.4E+00 |
| Manganese | na |
| Mercury | 4.6E-01 |
| Nickel | 3.8E+00 |
| Selenium | 3.0E+00 |
| Silver | 1.3E-01 |
| Zinc | 1.4E+01 |

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Stats.exe Results

| | |
|---|--|
| <p>Facility = Northumberland Middle/High School Chemical = Ammonia-N Chronic averaging period = 30 WLAa = 1.56 WLAc = 0.237 Q.L. = .2 # samples/mo. = 1 # samples/wk. = 1</p> | <p>Facility = Northumberland Middle/High School Chemical = TRC Chronic averaging period = 4 WLAa = 19 WLAc = 11 Q.L. = 100 # samples/mo. = 30 # samples/wk. = 7</p> |
| <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 3 Variance = 3.24 C.V. = 0.6 97th percentile daily values = 7.30025 97th percentile 4 day average = 4.99137 97th percentile 30 day average= 3.61815 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> | <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 20000 Variance = 1440000 C.V. = 0.6 97th percentile daily values = 48668.3 97th percentile 4 day average = 33275.8 97th percentile 30 day average= 24121.0 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> |
| <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 0.478187812139666 Average Weekly limit = 0.478187812139665 Average Monthly Llimit = 0.478187812139665 The data are: 3.0 mg/L</p> <p>As ammonia-N is a component of TKN (40-60%) and the TKN permit limitation is 3.0 mg/L, the ammonia-N discharged cannot exceed 3.0 mg/L due to the presence of the TKN limitation. For this reason an expected value of 3.0 mg/L Ammonia-N was used to calculate the limitation. This limitation is more stringent than the 2007 permit limitation. Ammonia toxicity increases as pH and temperature increase. The high 90th percentile max pH of 8.9 SU and high 90th percentile temperature are the drivers behind the reduced acute and chronic wasteload allocation for ammonia. This reduced wasteload allocation results in a more stringent permit limitation.</p> | <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 16.0883226245855 Average Weekly limit = 9.8252545713861 Average Monthly Limit = 7.9737131838758 The data are: 20000 µg/L</p> <p>Per GM 00-2011 a datum of 20,000 µg/L is used to force a TRC limit. The resulting limit is more stringent than the 2007 permit. This is due to the limitation being calculated based on 30 samples in a month (as per the 2007 permit) as opposed to one sample in a month.</p> |

Attachment H: Stream Sanitation Memorandum (12/9/2006)

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Regional Office*

4949-A Cox Road, Glen Allen, VA 23060-6296

804/527-5020

SUBJECT: Stream Sanitation Analysis – Crabbe Mill Stream, UT
Proposed Northumberland MS/HS STP (VA0092061)

TO: Denise M. Mosca

FROM: Jennifer V. Palmore *WR*

DATE: October 27, 2006
December 19, 2006 (Revised)

COPIES: Susan Alexander, Modeling File

A request for a stream sanitation analysis for a proposed sewage treatment plant was originally received on September 26, 2006. The facility will service the new Northumberland County Middle and High Schools, which are currently under construction. The discharge will be located near Heathsville on an unnamed tributary of Crabbe Mill Stream in watershed VAP-C03R. The proposed design flow of the facility was initially stated as 0.0105 MGD; however on December 18, 2006 the permittee revised their proposed design flow to 0.0160 MGD.

The USGS Heathsville Quadrangle shows the stream to be intermittent. The permit application included a perennial stream determination report which confirmed that, at the discharge point, the receiving stream should be considered an intermittent water.

A site visit was performed by Jennifer Palmore and Susan Alexander on October 20, 2006. During the site visit, the stream was flowing slightly due to a recent heavy rain. The stream was heavily wooded with a defined, meandering channel with a sandy bottom. The stream showed a slight to moderate riffle and pool character due to checkdams formed by roots and fallen logs. However, heavy iron-oxidizing bacteria (iron floc) were visible along the stream bottom throughout the reach.

Due to the intermittent nature of the stream and the heavy iron floc, the stream was considered unmodelable using DEQ's Regional Model 4.1. It is recommended that effluent limits for this discharge be established based on Best Professional Judgement in accordance with A.J. Anthony's Swamp Limits memorandum (A.J. Anthony, 1987), which recommends the following limits, regardless of flow.

| | |
|---------------------|------------|
| Q: | 0.0160 MGD |
| cBOD ₅ : | 10 mg/L |
| TSS: | 10.0 mg/L |
| TKN: | 3.0 mg/L |

In addition, due to the defined stream channel characteristics, I would recommend a dissolved oxygen (DO) limit of 5.0 mg/L to conform with the appropriate daily average DO water quality criteria for free-flowing streams.

If you have any questions about this analysis or need any additional information, please do not hesitate to contact me.

Attachment I: Certificate to Operate (2/17/2009)



VAD92061
R-G-Rt

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE

Preston Bryant
Secretary of Natural Resources

4949-A Cox Road, Glen Allen, Virginia 23060
(804) 527-5020 Fax (804) 527-5106
www.deq.virginia.gov

David K. Paylor
Director

Northumberland County
Kenneth Eades
Administrator
P.O. Box 129
Heathsville, Virginia 22473

FEB 17 2009

RE: Issuance of Certificate to Operate (CTO)
Northumberland Middle/High School Wastewater Treatment Plant

Dear Mr. Eades:

This letter transmits the CTO for the subject facility in accordance with the statement of completion dated December 15, 2008 submitted by A. R. Williams, P.E., of Timmons Group and the submittal of the Operations and Maintenance (O&M) manual on January 27, 2009.

A Discharge Monitoring Report was transmitted to you with the VPDES permit issuance in April, 2007. Another copy is attached for your convenience.

If you would like additional information regarding this project or if you have any questions regarding this matter, please contact Denise Mosca of my staff at dmmosca@deq.virginia.gov or (804) 527-5027.

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis J. Linderman".

Curtis J. Linderman, P.E.
Water Permit Manager

Cc: Clint Stables, Northumberland County School Board
A. R. Williams, Timmons Group
Thomas Irungu, M.D., M.P.H., Director, Three Rivers Health District
DEQ – PRO file

**Department of Environmental Quality
APPLICATION for CERTIFICATE TO OPERATE**

Under the Sewage Collection and Treatment Regulations 9 VAC 25-790

See instructions. Submit 2 copies of this form and any attachments. Form will expand as you enter information.

Project Title: (as it appears on plans) Northumberland Middle School - High School Utilities

P.E. Seal Date on Cover: August 8, 2007

Specifications Title and Date: Northumberland County Middle School - High School Utilities, August 8, 2008

| | |
|--|-----------------------------|
| Location of Project: Academic Lane, Heathsville, Virginia 22473 | County/City: Northumberland |
|--|-----------------------------|

Receiving Wastewater Collection System(s): None – WWTP will discharge into Crabbe Mill Stream as per VPDES Permit

Receiving Sewage Treatment Plant(s): None

| PROJECT OWNER | PROJECT ENGINEER |
|--|--|
| Name: Northumberland County Public Schools / <i>NORTHUMBERLAND COUNTY PO BOX 629 HEATHSVILLE VA 22473</i> Clint Staples, Superintendent | Name: Alfred Williams, P.E. |
| Signature and Date: <i>Clint Staples</i> | Company Name: Timmons Group |
| Address: 2172 Northumberland Highway Lottsburg, VA. 22511 <i>COUNTY ADMINISTRATOR PO BOX 629 HEATHSVILLE VA 22473</i> | Address: 1001 Boulders Parkway Richmond, Virginia 23225 |
| Phone: 804-529-6135 <i>804 530-7666</i> | Phone: 804-200-6381 |
| Email: cstaples@nucps.net <i>Keces@northumberland.vt.us</i> | Email: al.williams@timmons.com |

PTL NUMBER FROM CERTIFICATE TO CONSTRUCT: 22700

Attach Copy of the original Certificate to Construct if issued prior to November 9, 2008, or if a WQIF project. If applicable, provide verification of compliance with any conditions in the Certificate to Construct.

Design Sewage Flow: (a) average daily flow (MGD): .016 (b) peak flow (MGD): .083

For sewage treatment plant projects, provide the VPDES/VPA Permit Number: VA0092061

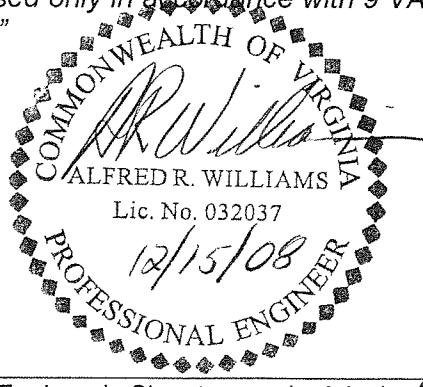
Is a new Discharge Monitoring Report (DMR) required? Yes No

For Pump Stations and Sewage Treatment Plants check Reliability Class: I II III

The following statement must be signed and sealed by the inspecting engineer: (DEQ will not conduct a confirming inspection.)

"Statement of Completion:

I hereby certify that the construction work was completed in accordance with the approved referenced design documents or revised only in accordance with 9 VAC 25-790-180.B. and I have completed sufficient inspections to certify the work."



Alfred R. Williams

Inspecting Licensed Engineer's Signature and original seal (signed and dated)

For DEQ use only:

In accordance with Code of Virginia 1950, as amended, Title 62.1, Section 62.1-44.19, this form, signed by the appropriate DEQ representative, serves as the Certificate to Operate for the referenced project.

Curtis Lindeman
Name

[Signature]
Signature

2/17/09
Date

24355
CTO PTL Number

Department of Environmental Quality Authorized Representative

For sewage treatment plants, an Operation and Maintenance Manual must be submitted to the DEQ Regional Office in accordance with 9 VAC 25-790 and VPDES/VPA permit requirements.



For pump stations, an Operation and Maintenance Manual must be maintained for the facility in accordance with 9 VAC 25-790, but is NOT to be submitted to DEQ. The pump station must be operated and maintained in accordance with that manual.

Attachment J: Change of Ownership Agreement Form

Change of Ownership Agreement Form

RE: Change of Ownership - VPDES Permit No. VA 009 2061

Name of permitted facility: Northumberland Middle / High School
Northumberland County WWTP

TO: Virginia Department of Environmental Quality
Regional Office Address

We, the undersigned, hereby request a transfer of ownership for the referenced permit.

Anticipated date of transfer: Permit Renewal date

CURRENT OWNER SHOWN ON PERMIT: I (We) hereby agree to the transfer of ownership modification to the referenced VPDES Permit. Northumberland County Public Schools
Clint Stables

Attach verification that all current owner outstanding Annual Fee payments are up to date YES/NO). If NO see statement under NEW OWNER below.

Current Owner name as listed on the VPDES Permit Cover

Page: Northumberland County Public Schools

Signed: David C. Stables Date: October 6, 2011

Printed Name: David C. Stables Title: Superintendent

Address: 2172 Northumberland School Bd
Lotsburg, VA 22511

NEW OWNER TO ASSUME PERMIT: I (We) hereby agree to the change of ownership modification to the referenced VPDES Permit, and agree to accept all conditions and responsibilities of the permit.

NEW OWNER agrees to pay all outstanding Annual Fee payments currently due by old owner YES/NO

Transferred permit to be issued to: Northumberland County

Signed: Kenneth D. Eades Date: Oct. 6, 2011

Printed Name: Kenneth D. Eades Title: County Administrator

Address: P.O. Box 129
Heathsville, VA 22473

Telephone: (804) 580-7666